GEOMAR
Helmholtz-Zentrum für Ozeanforschung Kiel

GEOMAR Helmholtz Centre for Ocean Research Kiel is a foundation under public law jointly financed by the Federal Republic of Germany (90%) and the State of Schleswig-Holstein (10%). It is one of the internationally leading institutions in the field of marine research.

Through our research and our commitment to the transfer of knowledge and technology, we contribute significantly to the preservation of the function and protection of the ocean for future generations.

The research unit 'Experimental Ecology' investigates how coastal ecosystems respond to climate change. We are particularly interested in how benthic foundation species such as macroalgae, corals and bivalves cope with summer heat wave mortality and whether heat tolerant genotypes that currently exist at low frequencies are selected by intense heat waves. Ultimately, we want to use information on adaptive potential in models to better predict geographic range shifts of important foundation species and their associated communities under various climate change scenarios. We utilize unique outdoor mesocosm systems (Kiel Outdoor Benthocosms, KOBs) to experimentally select from thousands to millions of genotypes within complex communities and couple these experiments with field studies.

An important model species in our research unit is the macroalga *Fucus vesiculosus*. *F. vesiculosus* forms extensive meadows in temperate coastal habitats and has a very limited dispersal potential, leading to potentially strong genetic differentiation along coastlines. We have recently succeeded in mass-fertilization of hundreds of genotypes and rearing of juvenile algae in mesocosms under different thermal scenarios. We now want to study selection dynamics in such experiments to identify genomic targets of selection and to phenotype heat-resistant survivors. The research unit Experimental Ecology of the research division Marine Ecology is offering a position as a

Doctoral Researcher (m/f/d)
"Algal heat adaptation"

starting on October 1st 2025. The position offers the possibility to attain a doctoral degree in natural sciences.

Project Description

The candidate is going to be part of the collaborative project FUBLUC (ca. 20 participants) that aims to (i) understand the blue carbon potential of *Fucus* meadows in the Baltic Sea and (ii) to develop methods to restore *Fucus* algal meadows in degraded habitats. For the latter, a detailed understanding of local adaptation of *Fucus* populations living in thermally variable habitats along the German Baltic Sea coast is necessary. We aim to explore *Fucus* productivity and associated biodiversity in relation to thermal variability at several locations. From these populations, we will breed specimen in the lab and mesocosms to study heat stress responses, heritability of heat-related traits and the genomic basis for heat tolerance. In addition, we want to develop techniques to restore *Fucus*-depleted habitats using genetically diverse breeding stocks to select for genotypes that have superior fitness in specific habitats.

Position:

The successful candidate will (i) describe physiological characteristics of thermal tolerance of *Fucus* juveniles between populations in mesocosm and laboratory experiments, (ii) identify genomic loci linked to thermal tolerance, and (iii) perform trials to monitor resilience of selected lineages of *F. vesiculosus* in the southwestern Baltic Sea in field experiments.

Qualifications:

Required:

- Master degree in Biology, Molecular Biology, Genomics or related fields of study
- Experience with state-of-the art molecular biological lab techniques (e.g. nucleic acid extraction, sequencing library preparation, Hi-C, ATAC-seq etc.)
- Experience with bioinformatic analysis of large sequencing data sets
- Strong statistical skills using R

Desirable:

- Experience with assembly, annotation and/or analysis of plant or algal genomes
- Expertise in evolutionary biology and evolutionary genomics
- Experience with algal or plant ecophysiological approaches
- Experience with nanopore sequencing

At a workplace, directly on the Kiel Fjord with many leisure and recreational opportunities, we offer you:

- Work in the field of marine and climate research, a forward-looking area with social significance
- An exciting and international work environment with the opportunity to provide important impetus for the development of sustainable solutions
- Support services for professional and personal life situations
- Good conditions for work-life balance: We offer, among other things, the possibility of mobile working and individual working time arrangements, vacation courses for the children of our employees, and good support in finding a place in a daycare center at the Kiel site
- International work environment
- 30 vacation days + additional time off at Christmas Eve and on New Year's Eve
- Company pension plan and capital-forming benefits

The position is available for a funding period of 3.5 years. The envisioned start is October 2025. The salary depends on qualification and could be up to the class E13 (TVöD-Bund) of the German tariff for public employees.

This is a part-time position according to 75% of a full-time equivalent. The position cannot be split. Flexible work-time models are possible.

GEOMAR Helmholtz Centre for Ocean Research Kiel seeks to increase the proportion of female scientists and explicitly encourages qualified female academics to apply. GEOMAR is an equal opportunity employer and encourages scientists with disabilities to apply. Qualified disabled applicants will receive preference in the application process.

Please send your application for this post **no later than August 31st, 2025** under the following link:

Online application

As soon as the selection procedure has finished, all your application data will be removed according to data protection regulation.

For further information regarding the position and research unit please contact

Prof. Dr. Frank Melzner (fmelzner@geomar.de).

We will answer all your questions if you send us an e-mail to bewerbung@geomar.de. In doing so, please refer to the keyword “FucAdapt”.

For further information on GEOMAR Helmholtz Centre for Ocean Research Kiel or the Helmholtz Association, please visit www.geomar.de or www.helmholtz.de .

GEOMAR is committed to an objective and non-discriminatory personnel selection. Our job advertisements address all people. We expressly renounce the submission of application photos.

The TOTAL E-QUALITY award is presented to GEOMAR for efforts in terms of human resource management aimed at providing equal opportunity.